

AMENDMENTS TO THE CLAIMS

1. (Previously Presented) A communication apparatus performing periodic communications with another communication apparatus via a transmission line, comprising:

a communication control portion operable to set a communication period to $L \times m/n$ to perform communications, wherein L is a variation cycle of characteristics of a transmission line, n is an integer that is 2 or larger, and m is an integer that is greater than or equal to n and whose greatest common measure with n is 1,

a transmission line estimation portion operable to estimate the characteristics of the transmission line within a time L/n after a certain offset time has passed since the communication period started, and

a communication parameter determination portion operable to determine a communication parameter to be used by the communication control portion, based on a result of estimation by the transmission line estimation portion.

2. (Previously Presented) The communication apparatus according to claim 1, wherein the offset time is $L \times k/n$, and k is a real number that satisfies $0 \leq k < m$.

3. (Original) The communication apparatus according to claim 1, wherein the transmission line estimation portion estimates the characteristics of the transmission line at least n times.

4. (Previously Presented) The communication apparatus according to claim 1, wherein the transmission line estimation portion estimates the characteristics of the transmission line at an initial starting up of the communication apparatus or upon a detection of a change in a state of the transmission line.

5. (Original) The communication apparatus according to claim 1, wherein the communication period is a period of beacons sent from a communication apparatus serving as a master unit.

6. (Previously Presented) The communication apparatus according to claim 5, wherein the communication control portion is operable to send a request to allocate a time for estimating the characteristics of the transmission line to the communication apparatus serving as the master unit.

7. (Previously Presented) The communication apparatus according to claim 6, wherein the communication control portion is operable to notify another communication apparatus of an allocation of a time for estimating the characteristics of the transmission line using a beacon frame or a polling frame, and the transmission line estimation portion is operable to estimate the characteristics of the transmission line only when permission is given.

8. (Original) The communication apparatus according to claim 1, wherein the variation cycle L of the characteristics of the transmission line is a half cycle of a commercial power supply cycle.

9. (Previously Presented) A transmission line estimation method executed by a communication apparatus performing periodic communications with another communication apparatus via a transmission line, comprising:

setting a communication period to $L \times m/n$ to perform communications, wherein L is a variation cycle of characteristics of a transmission line, n is an integer that is 2 or larger, and m is an integer that is greater than or equal to n and whose greatest common measure with n is 1,

estimating the characteristics of the transmission line within a time L/n after a certain offset time has passed since the communication period started, and

determining a communication parameter to be used in the communications, based on a result of said estimating.

10. (Previously Presented) An integrated circuit used for a communication apparatus performing periodic communications with another communication apparatus via a transmission line,

wherein circuits are integrated that function as:

a communication control portion operable to set a communication period to $L \times m/n$ to perform communications, wherein L is a variation cycle of characteristics of a transmission line, n is an integer that is 2 or larger, and m is an integer that is greater than or equal to n and whose greatest common measure with n is 1,

a transmission line estimation portion operable to estimate the characteristics of the transmission line within a time L/n after a certain offset time has passed since the communication period started, and

a communication parameter determination portion operable to determine a communication parameter to be used by the communication control portion, based on a result of estimation by the transmission line estimation portion.

11. (New) A beacon period determination method executed by a communication apparatus performing periodical communications with another communication apparatus via a transmission line, comprising:

determining an offset time based on one section among a plurality of sections which is obtained by dividing a variation cycle, and

setting a beacon period that is synchronized with a power supply cycle, based on the offset time.

12. (New) The beacon period determination method according to claim 11, further comprising estimating, based on the offset time, characteristics of the transmission line that is synchronized with the power supply cycle.

13. (New) The beacon period determination method according to claim 11, further comprising:

estimating, based on the offset time, characteristics of the transmission line;

determining a correlation, regarding a noise, between the beacon period and the variation cycle, based on a tonemap obtained from a result of estimation in the estimating step; and

setting a beacon period that is determined to have high correlation.